MANAGEMENT OF NON-VOLATILE MEMORY SYSTEMS HAVING LARGE ERASE BLOCKS

ABSTRACT OF THE DISCLOSURE

A non-volatile memory system of a type having blocks of memory cells erased together and which are programmable from an erased state in units of a large number of pages per block. If the data of only a few pages of a block are to be updated, the updated pages are written into another block provided for this purpose. Updated pages from multiple blocks are programmed into this other block in an order that does not necessarily correspond with their original address offsets. The valid original and updated data are then combined at a later time, when doing so does not impact on the performance of the memory. If the data of a large number of pages of a block are to be updated, however, the updated pages are written into an unused erased block and the unchanged pages are also written to the same unused block. By handling the updating of a few pages differently, memory performance is improved when small updates are being made. The memory controller can dynamically create and operate these other blocks in response to usage by the host of the memory system.